the two-year renewal term. As an exception to this requirement, if the licensee obtains the MTA license covering its assigned spectrum in accordance with §§ 90.661 through 90.671, these loading requirements will no longer be applicable and the coverage requirements of § 90.665 will govern.

[47 FR 41032, Sept. 16, 1982, as amended at 48 FR 51929, Nov. 15, 1983; 49 FR 36377, Sept. 17, 1984; 53 FR 12157, Apr. 13, 1988; 57 FR 37731, Aug. 20, 1992; 58 FR 12177, Mar. 3, 1993; 59 FR 59966, Nov. 21, 1994; 60 FR 21991, May 4, 1995; 60 FR 48918, Sept. 21, 1995; 61 FR 6157, Feb. 16, 1996; 61 FR 6577, Feb. 21, 1996; 62 FR 18935, Apr. 17, 1997; 63 FR 68969, Dec. 14, 1998]

§ 90.633 Conventional systems loading requirements.

(a) Non-SMR conventional systems of communication will be authorized on the basis of a minimum loading criteria of seventy (70) mobile stations for each channel authorized.

(b) A channel will not be assigned to additional licensees when it is loaded to 70 mobile stations. Where a licensee does not load a channel to 70 mobiles the channel will be available for assignment to other licensees. All authorizations for conventional systems are issued subject to this potential channel sharing condition.

(c) Except as provided in § 90.629 of this part, licensees of conventional systems must place their authorized stations in operation not later than one year after the date of grant of the system license.

(d) If a station is not placed in operation within one year, except as provided in Section 90.629 of this part, the license cancels automatically. For purposes of this section, a base station is not considered to be in operation unless at least one associated mobile station is also in operation.

(e) A non-SMR licensee may apply for additional frequency pairs if its authorized conventional channel(s) is loaded to seventy (70) mobiles. Applications may be considered for additional channels in areas where spectrum is still available and not applied for, even if the already authorized channel(s) is not loaded to 70 mobile units, upon an appropriate demonstration of need.

(f) Wide area systems may be authorized to persons eligible for licensing under subparts B or C of this part upon an appropriate showing of need. For loading purposes, if the total number of mobile stations justifies the total number of authorized based frequencies in a given area, the system will be construed to be loaded.

(g) Regional, statewide, or ribbon configuration systems may be authorized to persons eligible for licensing under subparts B or C of this part upon an appropriate showing of need. In a ribbon, regional or statewide system, a mobile station will be counted for channel loading purposes only for the base station facility in the geographic area in which it primarily operates. If this cannot be determined, it will be counted fractionally over the number of base station facilities with which it communicates regularly.

[47 FR 41032, Sept. 16, 1982, as amended at 48 FR 51929, Nov. 15, 1983; 56 FR 65860, Dec. 19, 1991; 59 FR 59966, Nov. 21, 1994; 62 FR 18935, Apr. 17, 1997; 64 FR 10397, Mar. 4, 1999]

TECHNICAL REGULATIONS REGARDING THE USE OF FREQUENCIES IN THE 806–824 MHZ, 851–869 MHZ, 896–901 MHZ, AND 935–940 MHZ BANDS

§ 90.635 Limitations on power and antenna height.

(a) Systems to be located within 24 km. (15 mi.) of the geographic center of the 50 urbanized areas detailed in table 1 will be considered ''urban'' systems. All others will be considered ''suburban'' systems.

(b) The effective radiated power and antenna height, for base stations used in suburban-conventional systems of communications, shall be no greater than 500 watts (27 dBw) and 152 m. (500 ft.) above average terrain (AAT), respectively, or the equivalent as determined from table 2. These are maximum values, and applicants are required to justify power levels and antenna heights requested. For service area requirements less than 32 km. (20 mi.) in radius, see table 3.

(c) The effective radiated power and antenna height for base stations used in trunked and urban-conventional systems may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from table 2. These are maximum values,

and applicants will be required to justify power levels and antenna heights requested. For service area requirements less than 32 km (20 mi.) in radius, see table 4.

(d) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

TABLE 1—URBANIZED AREAS

[NOTE: Coordinates are referenced to North American Datum 1983 (NAD83)]

Urban area	Geographic center	
	North latitude	West longitude
Akron, Ohio	41° 05′ 00.2″	81° 30′ 43.4″
Albany-Schenectady-Troy, New York	42° 39′ 01.3″	73° 44′ 59.4″
Atlanta, Georgia	33° 45′ 10.4″	84° 23′ 36.7″
Baltimore, Maryland	39° 17′ 26.4″	76° 36′ 43.9″
Birmingham, Alabama	33° 31′ 01.4″	86° 48′ 36.0″
Boston, Massachusetts	42° 21′ 24.4″	71° 03′ 23.2″
Buffalo, New York	42° 52′ 52.2″	78° 52′ 20.1″
Chicago, Illinois	41° 52′ 28.1″	87° 38′ 22.2″
Cincinnati, Ohio	39° 06′ 07.2″	84° 30′ 34.8″
Cleveland, Ohio	41° 29′ 51.2″	81° 41′ 49.5″
Columbus, Ohio	39° 57′ 47.2″	83° 00′ 16.7″
Dallas, Texas	32° 47′ 09.5″	96° 47′ 38.0″
Dayton, Ohio	39° 45′ 32.2″	84° 11′ 42.8″
Denver, Colorado	39° 44′ 58.0″	104° 59′ 23.9″
Detroit, Michigan	42° 19′ 48.1″	83° 02′ 56.7″
Fort Lauderdale-Hollywood, Florida	26° 07′ 31.3″	80° 08′ 59.2″
Fort Worth, Texas	32° 44′ 55.5″	97° 19′ 45.1″
Houston, Texas	29° 45′ 26.8″	95° 21′ 37.8″
Indianapolis, Indiana	39° 46′ 07.2″	86° 09′ 46.0″
Jacksonville, Florida	30° 19′ 44.9″	81° 39′ 41.3″
Kansas City, Missouri/Kansas	39° 04′ 56.0″	94° 35′ 20.8″
Los Angeles-Long Beach, California	34° 03′ 15.0″	118° 14′ 31.3″
Louisville, Kentucky/Indiana	38° 14′ 47.3″	85° 45′ 48.9″
Memphis, Tennessee/Mississippi	35° 08′ 46.3″	90° 03′ 13.3″
Miami, Florida	25° 46′ 38.4″	80° 11′ 31.2″
Milwaukee, Wisconsin	43° 02′ 19.0″	87° 54′ 15.3″
Minneapolis-St. Paul, Minnesota	44° 58′ 56.9″	93° 15′ 43.8″
New York, New York-Northeastern New Jersey	40° 45′ 06.4″	73° 59′ 37.5″
New Orleans, Louisiana	29° 56′ 53.7″	90° 04′ 10.3″
Norfolk-Portsmouth, Virginia	36° 51′ 10.5″	76° 17′ 19.8″
Oklahoma City, Oklahoma	35° 28′ 26.2″	97° 31′ 05.1″
Omaha, Nebraska/Iowa	41° 15′ 42.0″	95° 56′ 15.1″
Philadelphia, Pennsylvania/New Jersey	39° 56′ 58.4″	75° 09′ 19.6″
Phoenix, Arizona	33° 27′ 12.2″	112° 04′ 30.5″
Pittsburgh, Pennsylvania	40° 26′ 19.2″	79° 59′ 59.2″
Portland, Oregon/Washington	45° 31′ 05.4″	122° 40′ 39.3″
Providence-Pawtucket-Warwick, RI/MA	41° 49′ 32.4″	71° 24′ 39.2″
Rochester, New York	43° 09′ 41.2″	77° 36′ 20.0″
Sacramento, California	38° 34′ 56.7″	121° 29′ 44.8″
Saint Louis, Missouri/Illinois	38° 37′ 45.2″	90° 12′ 22.4″
Saint Petersburg, Florida	27° 46′ 19.1″	82° 38′ 18.4″
San Antonio, Texas	29° 25′ 37.8″	98° 29′ 07.1″
San Bernardino-Riverside, California	34° 06′ 30.0″	117° 17′ 31.2″
San Jose, California	37° 20′ 15.8″	121° 53′ 27.8″
San Francisco-Oakland, California	37° 46′ 38.7″	122° 24′ 43.9″
San Diego, California	32° 42′ 53.2″	117° 09′ 24.1″
Seattle, Washington	47° 36′ 31.4″	122° 20′ 16.5″
Springfield-Chicopee-Holyoke, MA/CT	42° 06′ 21.3″	72° 35′ 30.3″
Toledo, Ohio/Michigan	41° 39′ 14.2″	83° 32′ 38.8″
Washington, DC/Maryland/Virginia	38° 53′ 51.4″	77° 00′ 31.9″

TABLE 2—EQUIVALENT POWER AND ANTENNA HEIGHTS FOR BASE STATIONS IN THE 851–869 MHZ AND 935–940 MHZ BANDS WHICH HAVE A REQUIREMENT FOR A 32 KM (20 MI) SERVICE AREA RADIUS

Antenna height (ATT) meters (feet)	Effective radiated power (watts) [1,2,5]	
	Urban/ trunked	Suburban
Above 1,372 (4,500)	65	15
Above 1,220 (4,000) to 1,372 (4,500)	70	20
Above 1,067 (3,500) to 1,220 (4,000)	75	25
Above 915 (3,000) to 1,067 (3,500)	100	30
Above 763 (2,500) to 915 (3,000)	140	35
Above 610 (2,000) to 763 (2,500)	200	50
Above 458 (1,500) to 610 (2,000)	350	80
Above 305 (1,000) to 458 (1,500)	600	160
Above 152.5 (500) to 305 (1,000)	[3] 1,000	220
Up to 152.5 (500)	1,000	[4] 500

[1] Power is given in terms of effective radiated power (ERP).
[2] Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.
[3] Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).
[4] Stations with antennas below 152.5 m (500 ft) (AAT) will be restricted to a maximum power of 500 W (ERP).
[5] Licensees in San Diego, CA, will be permitted to utilize an ERP of 500 watts at the following mountaintop sites: Palomar, Otay, Woodson and Miguel.

TABLE 3—EQUIVALENT POWERS AND ANTENNA HEIGHTS FOR SUBURBAN-CONVENTIONAL BASE STATIONS IN THE 851–869 MHZ AND 935–940 MH Z BANDS WHICH HAVE A REQUIREMENT FOR LESS THAN 32.2 KM (20 MI) SERVICE AREA RADIUS—MAXIMUM EFFECTIVE RADIATED POWER (WATTS)

[Base station antenna height (AAT) in meters (feet)]

	Above / to					
	122 (400) to 152.5 (500)	91.5 (300) to 122 (400)	61 (200) to 91.5 (300)	30.5 (100) to 61 (200)	15 (50) to 30.5 (100)	0 (0) to 15 (50)
Service area radius km (mi):						
32 (20)	500	500	500	500	500	500
30 (19)	400	500	500	500	500	500
29 (18)	310	385	500	500	500	500
27 (17)	235	300	385	500	500	500
26 (16)	175	220	285	440	500	500
24 (15)	130	160	215	330	500	500
22 (14)	95	120	155	240	480	500
21 (13)	70	85	115	175	350	500
19 (12)	50	60	80	125	250	500
18 (11)	35	45	60	90	180	360
16 (10)	25	30	40	60	120	240
14 (9)	15	20	25	40	80	160
13 (8)	10	12	15	25	50	100
11 (7)	6	7	10	15	30	60
10 (6)	3	4	5	7	15	30
8 (5) or less	1	2	3	4	8	16

TABLE 4—EQUIVALENT POWERS AND ANTENNA HEIGHTS FOR URBAN-CONVENTIONAL AND TRUNKED SYSTEM BASE STATIONS IN THE 851–869 MHZ AND 935–940 MHZ BANDS WHICH HAVE A REQUIREMENT FOR LESS THAN 32.2 KM (20 MI) SERVICE AREA RADIUS—MAXIMUM EFFECTIVE RADIATED POWER (WATTS)

	Base station antenna height (AAT) meters (feet)							
Above	228 (750)	152.5 (500)	122 (400)	91.5 (300)	61 (200)	30.5 (100)	15 (50)	0 (0)
to	305 (1,000)	228 (750)	152.5 (500)	122 (400)	91.5 (300)	61 (200)	30.5 (100)	15 (50)
Service area radius: km (mi):								
32 (20)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
30 (19)	800	1,000	1,000	1,000	1,000	1,000	1,000	1,002
29 (18)	640	830	1,000	1,000	1,000	1,000	1,000	1,000
27 (17)	480	625	960	1,000	1,000	1,000	1,000	1,000
26 (16)	360	470	720	900	1,000	1,000	1,000	1,000
24 (15)	270	350	540	675	875	1,000	1,000	1,000

TABLE 4—EQUIVALENT POWERS AND ANTENNA HEIGHTS FOR URBAN-CONVENTIONAL AND TRUNKED SYSTEM BASE STATIONS IN THE 851–869 MHZ AND 935–940 MHZ BANDS WHICH HAVE A REQUIREMENT FOR LESS THAN 32.2 KM (20 MI) SERVICE AREA RADIUS—MAXIMUM EFFECTIVE RADIATED POWER (WATTS)—Continued

Base station antenna height (AAT) meters (feet)								
Above	228 (750)	152.5 (500)	122 (400)	91.5 (300)	61 (200)	30.5 (100)	15 (50)	0 (0)
to	305 (1,000)	228 (750)	152.5 (500)	122 (400)	91.5 (300)	61 (200)	30.5 (100)	15 (50)
22 (14)	200	260	400	500	650	1,000	1,000	1,000
21 (13)	140	180	280	350	450	700	1,000	1,000
19 (12)	100	130	200	250	325	500	1,000	1,006
18 (11)	70	90	140	175	230	350	700	1,000
16 (10)	45	60	90	110	145	220	440	1,000
14 (9)	30	40	60	75	100	150	300	600
13 (8)	20	25	40	50	65	100	200	400
11 (7)	15	20	30	40	50	80	160	300
10 (6)	8	10	16	20	25	40	80	100
8 (5) or less	5	6	9	12	15	25	50	100

[47 FR 41032, Sept. 16, 1982; 47 FR 41045, Sept. 16, 1982, as amended at 50 FR 784, Jan. 7, 1985; 51 FR 37404, Oct. 22, 1986; 52 FR 29857, Aug. 12, 1987; 53 FR 1027, Jan. 15, 1988; 58 FR 44963, Aug. 25, 1993; 60 FR 50123, Sept. 28, 1995; 63 FR 68969, Dec. 14, 1998]

§ 90.637 Restrictions on operational fixed stations.

(a) Except for control stations, operational fixed operations will not be authorized in the 806–824 MHz, 851–869 MHz, 896–901 MHz, or 935–940 MHz bands. This does not preclude secondary fixed tone signaling and alarm operations authorized in §90.235 or in paragraph (c) of this section.

(b) Control stations associated with one or more mobile relay stations will be authorized only on the assigned frequency of the associated mobile station. Use of a mobile service frequency by a control station of a mobile relay system is subject to the condition that harmful interference shall not be caused to stations of licensees authorized to use the frequency for mobile service communications.

(c) Trunked and conventional systems that have exclusive-use status in their respective geographic areas may conduct fixed ancillary signaling and data transmissions subject to the following requirements:

(1) All operations must be on a secondary, non-interference basis to the primary mobile operation of any other licensee.

(2) The output power at the remote site must not exceed 30 watts.

(3) Any fixed transmitters will not count toward meeting the mobile loading requirements nor be considered in whole or in part as a justification for authorizing additional frequencies in the licensee's mobile system.

(4) Automatic means must be provided to deactivate the remote transmitter in the event the carrier remains on for a period in excess of three minutes.

(5) Operational fixed stations authorized pursuant to the provisions of paragraphs (c) and (d) of this section are exempt from the requirements of §§90.425 and 90.429.

(d) Conventional systems that do not have exclusive-use status in their respective geographic areas may conduct fixed ancillary signaling and data transmissions only in accordance with all the provisions of §90.235.

[47 FR 41032, Sept. 16, 1982, as amended at 48 FR 51929, Nov. 15, 1983; 49 FR 36377, Sept. 17, 1984; 51 FR 37405, Oct. 22, 1986; 52 FR 1332, Jan. 13, 1987; 53 FR 12157, Apr. 13, 1988; 57 FR 34693, Aug. 6, 1992]

§ 90.645 Permissible operations.

Conventional and trunked radio systems may be used:

(a) Only for purposes expressly allowed under this part.

(b) Only persons who are eligible for facilities, either under this subpart or in the radio service included under subparts B or C of this part.